



# Magruder Certificate of Analysis

## Magruder Sample #190711 Grade 3 - 6.9 - 3.6

Analyte	Value	± Standard Uncertainty	# Labs
Total Nitrogen (3%)	3.640	0.019	85
Total Phosphorus as P2O5 (%)	5.336	0.124	53
Direct Available Phosphorus as P2O5 (6.9%)	5.112	0.141	40
Soluble Potassium as K2O (3.6%)	4.357	0.063	80
Acid Soluble Calcium (2%)	4.203	0.057	60
Acid Soluble Magnesium (1.7%)	1.710	0.016	61
Total Sulfur (7%)	7.343	0.092	46
Acid Soluble Boron (1.5%)	1.011	0.022	42
Acid Soluble Chromium (ppm)	27.66	2.09	18
Acid Soluble Cobalt (ppm)	17.81	1.16	22
Acid Soluble Copper (1%)	0.7645	0.0091	60
Acid Soluble Iron (1%)	0.9359	0.0105	64
Acid Soluble Manganese (1.5%)	1.127	0.016	61
Acid Soluble Molybdenum (ppm)	5.494	0.431	16
Acid Soluble Nickel (ppm)	22.52	1.12	21
Acid Soluble Zinc (2%)	1.438	0.015	61

1. Data obtained from participant results in the Magruder Check Sample Program.
2. Guaranteed concentrations noted by the value preceding the unit in Analyte name.
3. Values are robust means. Standard uncertainty determined as  $1.25 \times \text{robust standard deviation} / \sqrt{\text{\#Labs}}$ . Results only shown for analytes tested by 16 or more labs. Values and uncertainties for analytes tested by less than 16 labs are available in Analyte Reports.
4. Technical information on Certificate of Analysis available at [www.magruderchecksample.org/prod/Articles.html](http://www.magruderchecksample.org/prod/Articles.html)